An Empirical Study on the Meta- Search Engine Optimization Technique Based on Keyword: A Review

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ABSTRACT

This paper seeks to analyze the impact of keywords optimization technique on the effectiveness of Meta- search engine. This paper discusses in detail the technical process of keywords optimization in terms of the Meta- search engine (MSE)**.** The keywords based meta-search engine benefits the user the most when the user does not know what exact document the person is looking for. The goal of the proposed study is to help, ease and guide the searching efforts of a novice Web user toward their desired objectives.

Key words: MSE, optimization technique, novice web user.

Introduction

Now a day's Internet is fast growing technology in its 4th generation. Due to the large scale use of Internet, search engine become an important tools in the technology. Search engine uses various technologies including Meta-Search. A Meta search engine (MSE) is a search tool that sends user requests to several other search engines and/or databases and aggregates the results into a single list or displays them according to their source [6]. A typical MSE pulls off the result from a number of search engine say Google and Bing for the optimization of result, various company apply their own algorithm, as they are closely guarded secrets. Search engine algorithms have something in common including Relevancy, Individual factor and Off-Page factor.

Literature Review

The earliest Web-based Meta search engine is probably the MetaCrawler system [1] that became operational since June 1995. (The MetaCrawler's website (www.metacrawler.com) says the system was first developed in 1994.) Motivations for meta search include (i) increased search coverage because a meta search engine effectively combines the coverage of all component search engines, (ii) improved convenience for users because a meta search engine allows users to get information from multiple sources with one query submission and the meta search engine hides the differences in query formats of different search engines from the users, and (iii) better retrieval effectiveness because the result merging component can

naturally incorporate the voting mechanism, i.e., results that are highly ranked by multiple search engines are more likely to be relevant than those that are returned by only one of them. Over the last twelve years, many meta search engines have been developed and deployed on the Web. Most of them are built on top of a small number of popular general purpose search engines but there are also Meta search engines that are connected to more specialized search engines (e.g., medical/health search engines) and some are connected to over one thousand search engines. Even the earliest Meta search engines tackled the issues of search result extraction and result merging. Result merging is one of the most fundamental components in Meta search, and as a result, it has received a lot of attention in the Meta search and distributed information retrieval (DIR) communities and a wide range of solutions has been proposed to achieve effective result merging. Since different search engines may index a different set of web pages and some search engines are better than others for queries in different subject areas, it is important to identify the appropriate search engines for each user query. The importance of search engine selection was realized early in Meta search research and many approaches have been proposed to address this issue. Most Meta search engines are built on top of other search engines without explicit collaboration from these search engines. Current Meta search engines make several decisions on behalf of the user, but do not consider the user's complete information need when making these decisions. A Meta search engine must decide which sources to query, how to modify the submitted query to best utilize the underlying search engines, and how to order the results. Some Meta search engines allow users to influence one of these decisions, but not all three. A consistent interface is necessary for a Meta search engine to be useful [2, 3]. Such an interface ensures that results from several places can be meaningfully combined, while insulating the user from the specifics of the underlying search engines.

How Meta Search Engines Work

Most Meta Search Engines display multiple-engine search results in a single merged list, from which duplicate entries have been removed; although some do not collate search results but display them instead in separate lists as they are received from each engine. Duplicate entries may appear. Every Meta Search Engine has its own method of determining relevancy, so it's difficult to lump them all into a general category of how they operate, although they follow some of the same basic principles.[Courtesy: Google]

Meta Search engines don't have their own database of web pages; they merely act like a middle agent between user and other search engines. Once a user enter search query into a Meta Search engine, they then pass this on to the major search engines and provide user with

results from all the databases surveyed quickly. Because the major search engines often produce very different results, Meta Searches are especially useful when user are short on time and want to gain a general overview of the information available.

Search Engine Algorithm

Unique to every search engine, and just as important as keywords, search engine algorithms are the why and the how of search engine rankings. Basically, a search engine algorithm is a set of rules, or a unique formula, that the search engine uses to determine the significance of a web page, and each search engine has its own set of rules. These rules determine whether a web page is real or just spam, whether it has any significant data that people would be interested in, and many other features to rank and list results for every search query that is begun, to make an organized and informational search engine results page. The algorithms, as they are different for each search engine, are also closely guarded secrets, but there are certain things that all search engine algorithms have in common.

Relevancy: One of the first things a search engine algorithm checks for is the relevancy of the page. Whether it is just scanning for keywords, or looking at how these keywords are used, the algorithm will determine whether this web page has any relevancy at all for the particular keyword. Where the keywords are located is also an important factor to the relevancy of a website. Web pages that have the keywords in the title, as well as within the headline or the first few lines of the text will rank better for that keyword than websites that do not have these features. The frequency of the keywords also is important to relevancy. If the keywords appear frequently, but are not the result of keyword stuffing, the website will rank better.

Individual Factors: A second part of search engine algorithms are the individual factors that make that particular search engine different from every other search engine out there. Each search engine has unique algorithms, and the individual factors of these algorithms are why a search query turns up different results on Google than MSN or Yahoo! One of the most common individual factors is the number of pages a search engine indexes. They may just have more pages indexed, or index them more frequently, but this can give different results for each search engine. Some search engines also penalize for spamming, while others do not.

Off-Page Factors: Another part of algorithms that is still individual to each search engine are off-page factors. Off-page factors are such things as click-through measurement and linking. The frequency of click-through rates and linking can be an indicator of how relevant a web page is to actual users and visitors, and this can cause an algorithm to rank the web page higher. Off-page factors are harder for web masters to craft, but can have an enormous effect on page rank depending on the search engine algorithm**.**

In order to meet the personalized demand of users and help users to be more effective on selecting potentially useful search engines, the author suggested a Meta search engine algorithm that is based on personalized demands of users [4]. According to practical demands of users, different select strategies of Meta search engine algorithm are designed. The experimental results show that selection strategy of the algorithm can reflect some effects by the certain characteristics of the member search engines. So, this algorithm will be widely used in the future.
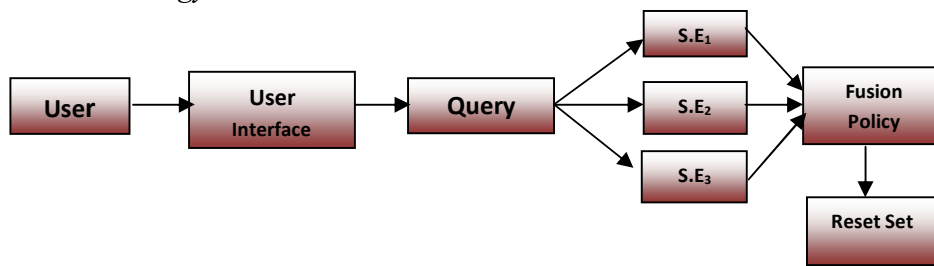
Architecture Methodology

Figure 1: Typical Meta-search engine Architecture

A typical Meta search engine (Fig. 1), such as Dog Pile [5], submits a user's query (with minor modifications for syntactic consistency) to a set of search engines, and returns the results in the order returned by the search engines. This order might not make sense if the user has a specific keyword need, such as "current events" or "research papers."User's information needs are not sufficiently represented by a keyword query alone. When it comes to keyword research these days, the buzzword is effective SEO or Search Engine Optimization. Many have spent hours trying to locate the right keyword in their research because finding the right word will indicate what is popular with Internet searchers and that as a result, helps user build user online business. Keyword optimization is an integral component of search engine optimization. It is one of the foundations of SEO. So failure in this part, could lead to failure in getting substantial amount of highly targeted web traffic. It can greatly affect the conversion rate, as well.

User may be quite successful in getting user website to the top of the search engine result pages (SERPs), but if users are targeting the wrong keywords then user click-through rate (CTR) and conversion rate will remain poor. Keep in mind that high traffic is redundant if conversion is low. All SEO and traffic generation activities must focus on getting the right prospects that convert well into sales.

Keyword Optimization Techniques: Keyword optimization involves a lot of processes. There are many different techniques to choose from. But to maximize user success, it is best to observe some or most of these effective keyword optimization techniques as listed below.

Latent Semantic Indexing (LSI): This is a keyword variation method that catches related search terms based on the relevancy of the phrase to the search query. The LSI keywords are generated by the search engines based on the popularity of the terms, as well as based on the thematic connection of the keywords to the specific search query. This method of keyword optimization is quite effective since it gathers different search terms based on the subject matter instead of the keyword density. Keyword phrases are also captured from the organic search. There are tools that user can use to get the latent semantic keywords for user main phrase. Some of them are free to use, so take advantage of the free LSI keyword tools to optimize user keyword research and keyword targeting.

Keyword Stemming: Another effective keyword optimization technique is called the stemming method. This involves adding suffixes and prefixes to the main phrase. This also includes adding short words to the main keyword terms. If user main keyword is 'laptop,' for instance, then a keyword stemming technique is to also target the keyword 'laptops.' Other keywords user can target using these techniques are best laptop, best laptops, top laptops, and cheap laptop, among others.

Keyword Variations: Unlike the LSI keyword method, this technique can be done without using any tool but by simply researching or reflecting what other users may be using to find certain products or when searching for information. So user have to empathize with user target audience in order to better understand what terms they could possibly be using when looking for things online.

For instance, if users are targeting the keyword phrase 'make money online' then there are many variations to choose from. User can also target the following search terms: work from home, earning income online, online work, make money through the internet, earn money online, and so on. User will notice that all of these terms are unique but they all mean the same thing.

Keyword Synonyms: This is another easy method of keyword optimization. All user have to do is to find the synonyms of user main keyword phrase; just look for words with similar meanings and add them to user list. In the example above, user can also target the keyword 'computers' if user main target keyword is 'laptops'. Other examples of synonym keywords are as follows: dog – pet, canine, puppy; cat – kitten, pet, feline; money – dollars, riches, income; and website – blog, sites.

Long Tail Keywords: This is another effective technique of keyword optimization. Targeting the long tail keywords will not only make it easier for user to rank user site higher due to low competition, but this is also very effective in capturing laser targeted visitors. Many

webmasters are encouraged to use long tail keywords instead of general keywords in order to improve their chances of successfully getting their sites to the front page of the search results. This can greatly improve the conversion rate as well.

Based on several studies, the longer the keyword phrase the more specific the targeting of web visitors. Although the possible traffic level is lower for long tail keywords compared to short general terms, but the visitors that user shall also get are also in quality and more precisely targeted. As a result, conversion rate will be improved and the bounce rate will be lowered.

Result and conclusion

The study reveals that by testing the above keyword optimization technique in MSE better results are obtained from Keyword Synonyms technique. In addition to this the author suggested improvise in MSE Architecture which is briefly discus in the section of future scope.
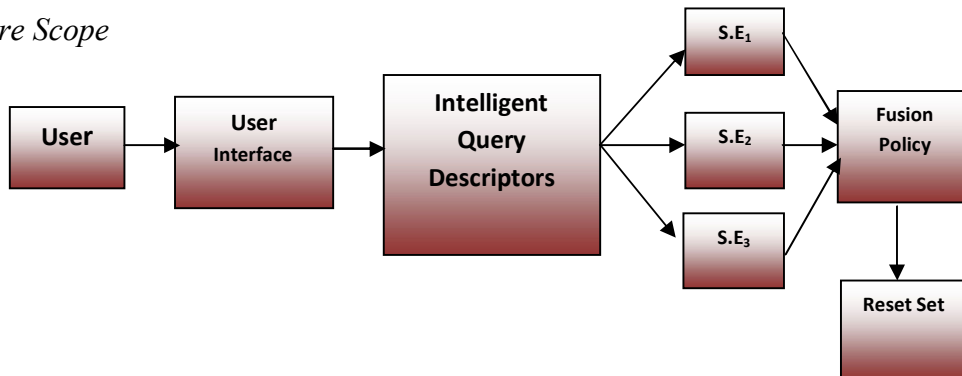
Future Scope

Figure 2: Query Descriptors

The suggested architecture shows the extended block of Intelligent Query Descriptors (IQD) which helps MSE architecture to access user keyword history, which will extract irrelevant information of user in simple MSE Architecture

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